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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,646	01/16/2004	Tong Xie	10030175-1	8030
57299	7590	02/07/2006	EXAMINER	
AVAGO TECHNOLOGIES, LTD. P.O. BOX 1920 DENVER, CO 80201-1920			DINH, DUC Q	
			ART UNIT	PAPER NUMBER
			2674	
DATE MAILED: 02/07/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/759,646

Applicant(s)

XIE ET AL.

Examiner

DUC Q. DINH

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 17-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 17 cites the limitation "at least one photo-sensor". There is no support for the limitation in the disclosures.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 10-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. The term "logic operable" in claim 10 and "optic arranged to combined" is a relative term which renders the claim indefinite. The term "logic operable" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

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6. Regarding claims 17-26, the word "means" is preceded by the word(s) "determining", "panning" and "of interferometrically analyzing" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

7. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "a first optical path and the second optical path" in claim 17 is used by the claim to mean "optical path for the first and second beam", while the accepted meaning is "a re-director", i.e. 130. The term is indefinite because the specification does not clearly redefine the term.

Drawings

8. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "at least one photo sensor" in claim 17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing

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sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-16, 23 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hines (U.S Patent No 6,344,846) in view of Mato, Jr et al. (U.S Patent No. 6,008,798), hereinafter Mato.

In reference to claim 1, Hines discloses method for determining a position of an input object (110; Fig. 1) for a processor-based system (59), said method comprising:

determining at least one angle of position for said object by a search beam (B), from lens 52) through a search area (within the mouse pad of the mouse 110), wherein said search beam is reflected off said object (110) creating a location beam (beam reflected from mouse 110) when said search beam is at said at least one angle of position; (col. 2, lines 50-59) and

determining a distance of said object from a reference point by analyzing an interference pattern created by combining said location beam (beam from system 59) and a control beam (from the reflected beam of the mouse 110), wherein said distance and said at least one angle of position describes said position for use by said processor based system. (col. 2, lines 60-67)

Hines discloses everything except that moving the search beam B through and search area, Mato discloses a method and apparatus for determining an object's position by moving a search beam using a rotating mirror (32; Fig. 1; col. 4, lines 60-65))

It would have been obvious for one of ordinary skill in the art at the time of the invention to learn the method of moving a search beam using rotating mirror in the device of Hines as taught by Mato because it would produces a beacon, i.e. search beam, which sweeps over an area repeatedly in only one direction, instead of back and forth, making it somewhat less complex to later differentiate between the forward and backward sweeps (col. 7, lines 41-45 of Mato).

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In reference to claim 2, Hines discloses the tracking a motion of said object by determining said position of said object a plurality of times (col. 15, lines 60-65).

In reference to claim 3, Hines discloses search beam is panned through an arc, and wherein said arc corresponds to a polar coordinate (col. 16, lines 15-22).

In reference to claim 4, Hines discloses the search beam is panned through at least a first arc and a second arc, wherein said first arc (beam from lens 51) and second arc (beam from lens 52) correspond to a first spherical coordinate and a second spherical coordinate (col. 15, lines 23-34).

In reference to claim 5, Hines discloses the search beam (B) is elongate in at least one direction perpendicular to the direction of propagation, and wherein said interference pattern is analyzed to determine a second angle of position (Fig. 13; col. 15, lines 24-29).

In reference to claim 6, Hines discloses the splitter (105; Fig. 13) for splitting a source beam to create said search beam and said control beam.

In reference to claim 7, Hines fitting said object (110) with a retroreflector (col. 10, lines 25-35).

In reference to claim 8, Hines discloses wherein said object (110) is a computer input device (Fig. 9).

In reference to claim 9, Hines discloses the computer input device is a computer mouse 110 (Fig. 9).

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In reference to claim 10, Hines discloses a system (Fig. 13) to determine a position for input to a processor based application, said system comprising:

a redirector (49, in computer 59, Fig. 13) at a fixed point;

an object for indicating a position to provide input for said application, said object operable to reflect a search beam (B) as a location beam;

logic operable to determine at least one angle of position from an orientation of said redirector; and logic operable to determine a distance of said object from said fixed point (col. 15, lines 35-45).

Hines discloses everything except the redirector 49 that moves in at least one dimension about a fixed point.

Mato discloses a method and apparatus for determining an object position using a director (32; Fig. 1) that moves in at least one dimension about a fixed point (col. 4, lines 60-65).

It would have been obvious for one of ordinary skill in the art at the time of the invention to modify the redirector (49) that moves in at least one dimension about a fixed point in the device of Hines as taught by Mato because it would produce a search beam which sweeps over an area repeatedly in only one direction, instead of back and forth, making it somewhat less complex to later differentiate between the forward and backward sweeps (col. 7, lines 41-45 of Mato).

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In reference to claim 11, Hines discloses a splitter (105) operable to split a source beam (122) into a control beam (T) and said search beam (B; Fig. 13);

optics (49, 108,109,121) arranged to combine said location beam and said control beam;

a detector (123 A-E) responsive to an interference pattern created by said combination;

and

the logic (computer) operable to determine distance analyzes said interference pattern to determine the distance (col. 15, lines 35-45).

In reference to claim 12, Hines discloses logic operable for tracking motion of said object by repeatedly determining its position (col. 15, lines 40-45).

In reference to claim 13, Hines a retroreflector affixed to said object (mouse 110; col. 10, lines 25-35).

In reference to claim 14, Hines a reflector (49) oriented to reflect the location beam along the same path as the control beam (Fig. 13).

In reference to claim 15, Hines discloses the object is a mouse in Fig. 9

In reference to claim 16, Hines discloses the computer (logic) operable to determine a second angle of position from said orientation of said redirector, and Mato discloses the redirector (rotating mirror) moves in a second dimension about said fixed point (col. 7, lines 3-13).

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In reference to claim 9, Mato discloses the input device is a stylus (418) as claimed. (col. Fig. 12, col. 22, lines 10-15).

In reference to claim 26, Mato discloses the source produce for the first beam and second beam produce at least one wavelength of electromagnetic radiation (col. 2, lines 15-20).

It would have been obvious for one of ordinary skill in the art at the time of the invention to recognize the source produces the wavelength of electromagnetic for sensing the position of the object input, i.e.: mouse or stylus, due to the proximity with the sensing system is well known and widely used. (Mato, col. 2, lines 19-22)

In reference to claim 27, Mato discloses the source produces electromagnetic radiation within a range (within the writing pad), and the range is used to establish geometric limits to said determined position (col. 2, lines 12-25).

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 17-22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Hines (U.S Patent No 6,344,846).

In reference to claim 17, Hines discloses system in Fig. 13 comprising:

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a first optical path for directing a first beam (B) toward at least one photo-sensor (123 A-E);

a second optical path for directing a second beam (R) reflected by a movable object (110) toward said at least one photo-sensor (123 A-E);

means (49) for determining an angular coordinate of said object;

an interface for receiving data generated by said at least one photo-sensor (col. 15, lines 60-65); and

a processor (computer 59) operable to analyze data received via said interface and generated by said at least one sensor to identify an interference pattern, wherein a dimension of said interference pattern is measured, wherein a distance coordinate of said object is determined using the measured dimension, and wherein said angular coordinate and said distance coordinate are use to define a position of said object for input into a processor based system (col. 16, lines 23-48).

In reference to claim 18, Hines discloses the processor is further operable to track said position of said object over multiple time-samples (col. 23-35), and wherein said processor is operable to control a graphical user interface object (col. 1, lines 10-15) that is responsive to said processor.

In reference to claim 19, Hines discloses the angular coordinate is associated with the second optical path (R), and the processor is operable to determine said position of said object using said angle and said measured dimension (col. 16, lines 41-46).

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In reference to claim 23, 20 for determining a second angular (flat fane shape beam 51, 52) coordinate associated with said second optical path (R), and wherein said processor operable to determine said position of said object in three dimensions using said first angle, said second angle, and said measured dimension (col. 16, lines 15-35).

In reference to claim 21 further comprising: memory operable to store the position of said object over said multiple time-samples (col. 15, lines 62-65).

In reference to claim 22, Hines the movable object is a computer input device, i.e., mouse 110 in Fig. 9.

In reference to claim 24, Hines discloses a system (Fig. 9) for determining a position of an object (110), said system comprising:

a source (122) of a first beam (B) and a second beam (R);

a means (49) of panning said second beam (R) through at least one angular coordinate, wherein said second beam is reflected off of said object (110); and

a means of interferometrically analyzing (computer 59) an interference pattern created by said first beam and said second beam (col. 3, lines 30-43).

In reference to claim 25, Hines discloses the source is a broadband source and the interfereometric means uses low-coherence interferometry (col. 3, lines 15-20).

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC Q DINH whose telephone number is (571) 272-7686. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edouard Patrick can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DUC Q DINH
Examiner
Art Unit 2674

DQD
February 4, 2006


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SUPERVISORY PATENT EXAMINER